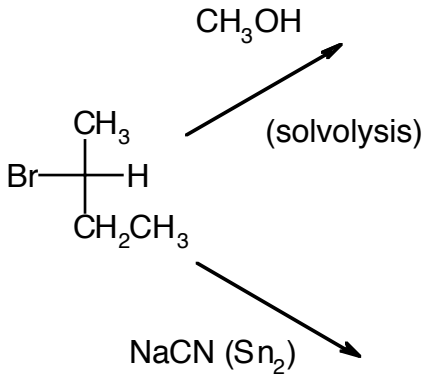
Chem 226/ Exam 3 practice questions continued

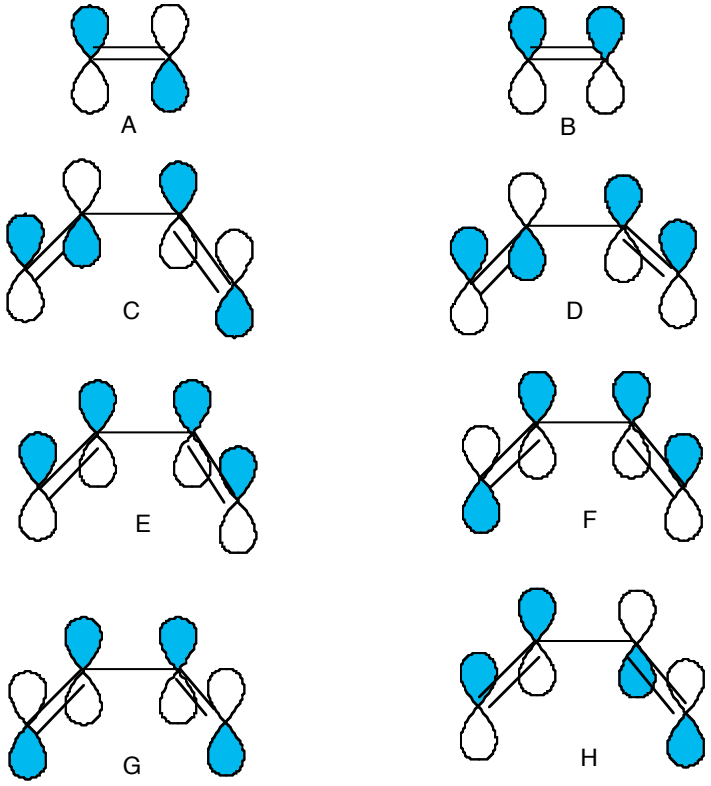
1. For the following Fischer structure, assign the (R) or (S) configuration, label the groups 1-4 with priorities 1 > 2 > 3 > 4.

   Provide Fischer structures for the substitution product(s) from the two reactions, be sure to consider stereochemistry. (The reactant is optically active.)



2. Free Radical chlorination of (R)-2-chlorobutane produces several isomers with the formula $C_4H_8Cl_2$.

   Complete the following Fischer structures for*: a)* the meso stereoisomer that is formed and *b)* one of the diastereomers of the meso form which is optically active that is formed.



3. Respectively for the dieneophile (A & B) and the diene (C thru H):

Which orbital diagrams represent LUMO for each?
Which orbital diagrams represent HOMO for each?
Which are the lowest enerrgy?
Which are the highest energy?
Which are the most symmetrical?
Which are the least symmetrical?

4. (R)-2-bromo-(S)-3-methylpentane, which is shown as a ball and stick image, is chlorinated. Draw Fisher structures for the stereoisomers of the major mono chlorinated product.